FIG.1

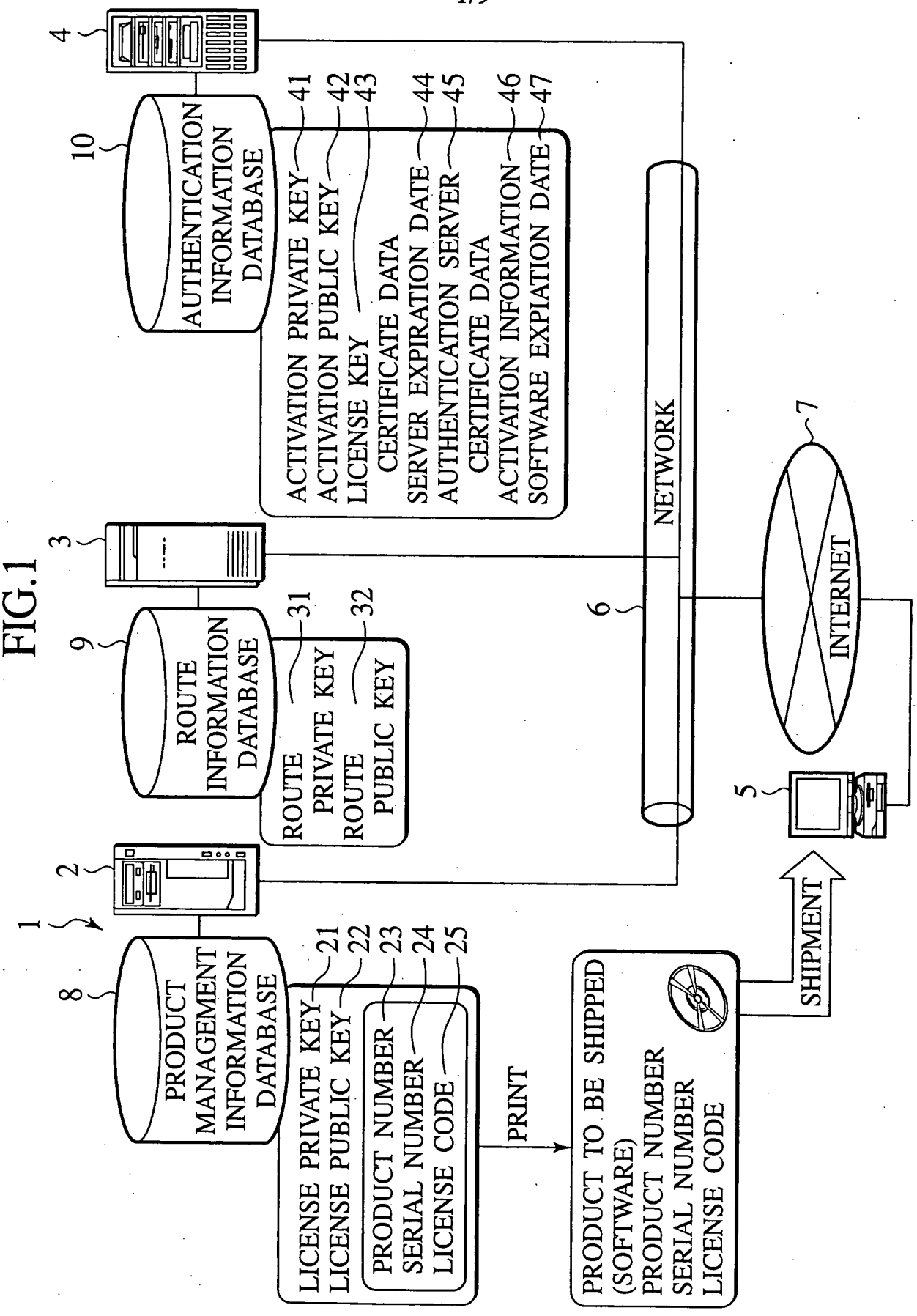

1
2
3
4
5
6
7
8
9
10
NETWORK
INTERNET
AUTHENTICATION INFORMATION DATABASE
41 ACTIVATION PRIVATE KEY
42 ACTIVATION PUBLIC KEY
43 LICENSE KEY CERTIFICATE DATA
44 SERVER EXPIRATION DATE
45 AUTHENTICATION SERVER CERTIFICATE DATA
46 ACTIVATION INFORMATION
47 SOFTWARE EXPIATION DATE
ROUTE INFORMATION DATABASE
31 ROUTE PRIVATE KEY
32 ROUTE PUBLIC KEY
PRODUCT MANAGEMENT INFORMATION DATABASE
21 LICENSE PRIVATE KEY
22 LICENSE PUBLIC KEY
23 PRODUCT NUMBER
24 SERIAL NUMBER
25 LICENSE CODE
PRINT
PRODUCT TO BE SHIPPED
(SOFTWARE)
PRODUCT NUMBER
SERIAL NUMBER
LICENSE CODE
SHIPMENT

FIG.2

ACTIVATION INFORMATION

LICENSE CODE	PRODUCT NUMBER	SERIAL NUMBER	MAC ADDRESS
a0857f05e8f0	SW-1000	2002120001	00-80-88-41-01-a0
7ra3vds78a9g8	SW-1000	2002120013	00-80-88-b1-51-91
32ehau583681	SW-1000	2002120657	00-80-88-41-11-a2
48y3581dsth84	SW-1000	2002120987	00-80-88-46-a1-18
⋮	⋮	⋮	⋮

FIG.3

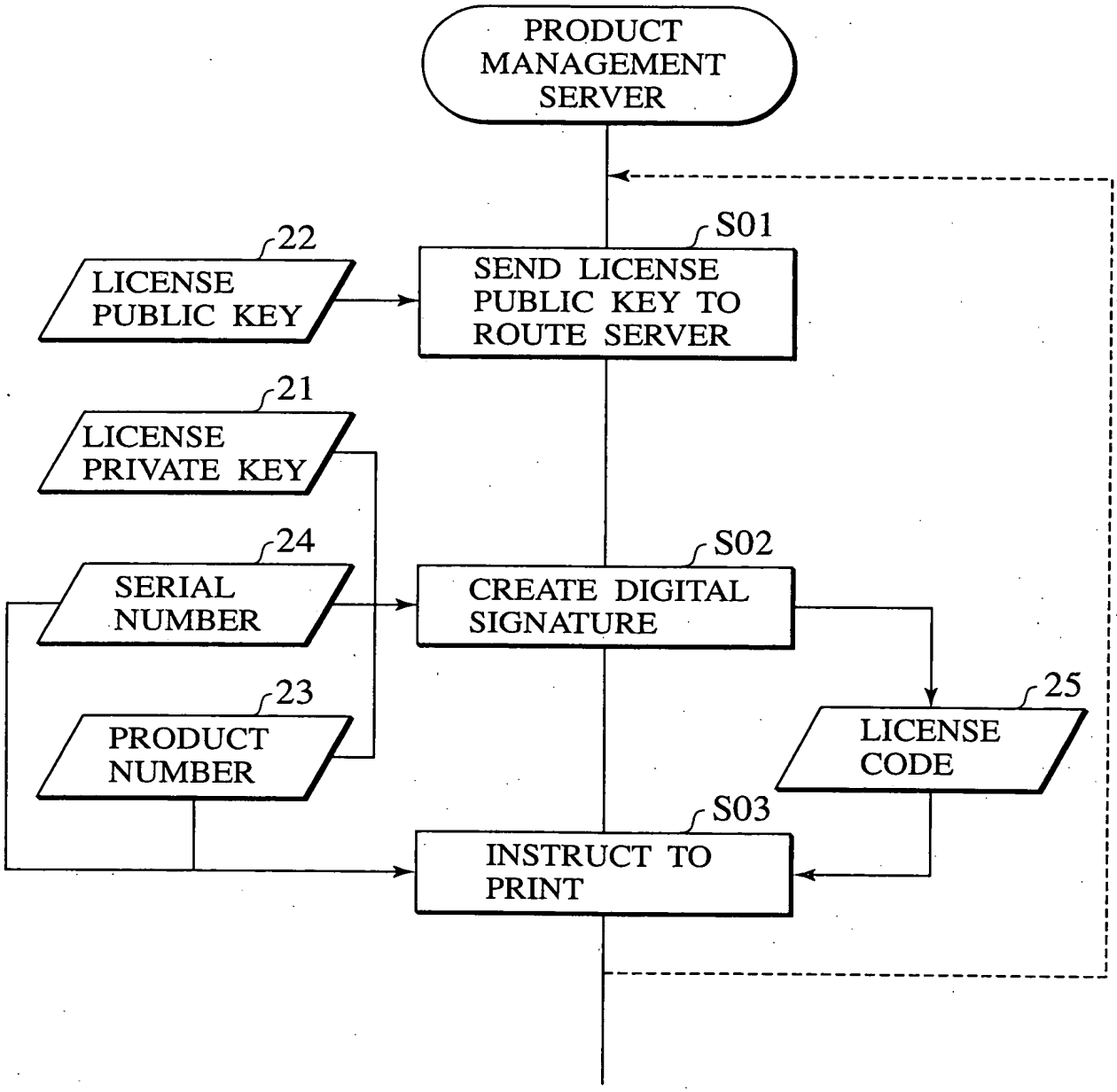

PRODUCT MANAGEMENT SERVER
S01
SEND LICENSE PUBLIC KEY TO ROUTE SERVER
22
LICENSE PUBLIC KEY
21
LICENSE PRIVATE KEY
24
SERIAL NUMBER
23
PRODUCT NUMBER
S02
CREATE DIGITAL SIGNATURE
25
LICENSE CODE
S03
INSTRUCT TO PRINT

FIG.4

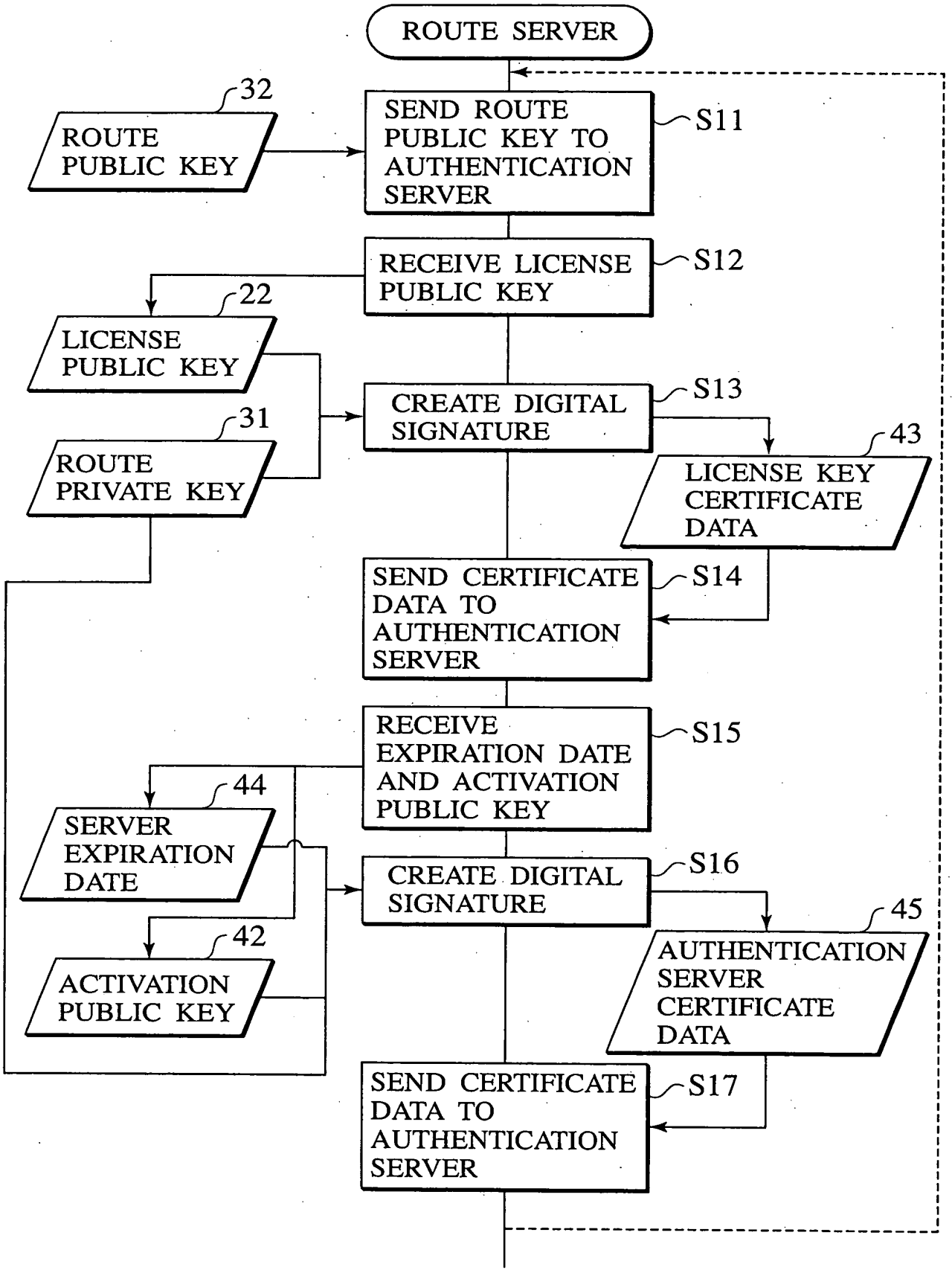

ROUTE SERVER
32
ROUTE PUBLIC KEY
SEND ROUTE PUBLIC KEY TO AUTHENTICATION SERVER
S11
RECEIVE LICENSE PUBLIC KEY
S12
22
LICENSE PUBLIC KEY
CREATE DIGITAL SIGNATURE
S13
31
ROUTE PRIVATE KEY
43
LICENSE KEY CERTIFICATE DATA
SEND CERTIFICATE DATA TO AUTHENTICATION SERVER
S14
RECEIVE EXPIRATION DATE AND ACTIVATION PUBLIC KEY
S15
44
SERVER EXPIRATION DATE
CREATE DIGITAL SIGNATURE
S16
45
42
ACTIVATION PUBLIC KEY
AUTHENTICATION SERVER CERTIFICATE DATA
SEND CERTIFICATE DATA TO AUTHENTICATION SERVER
S17

FIG.5

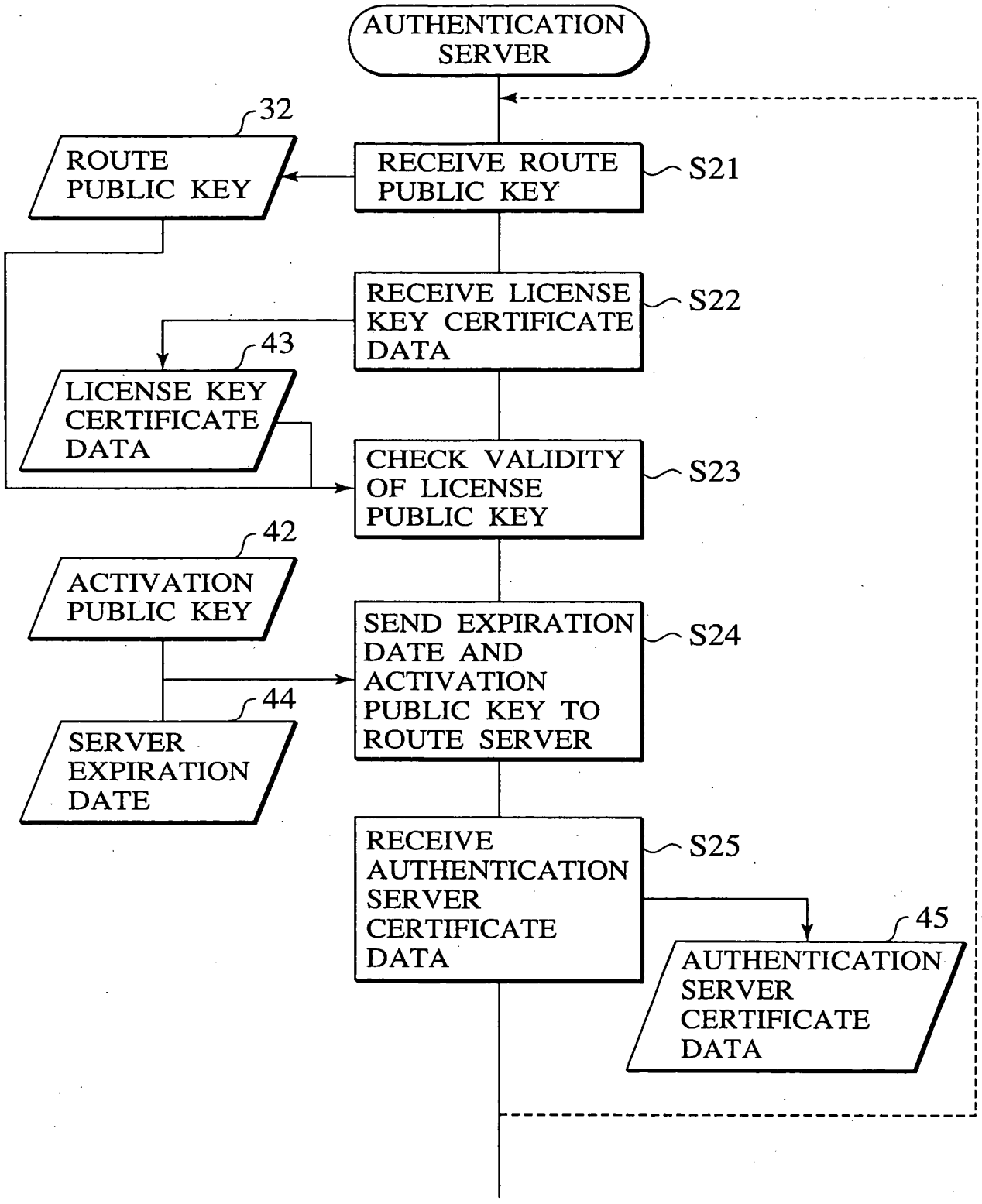

AUTHENTICATION SERVER
32
ROUTE PUBLIC KEY
RECEIVE ROUTE PUBLIC KEY
S21
RECEIVE LICENSE KEY CERTIFICATE DATA
S22
43
LICENSE KEY CERTIFICATE DATA
CHECK VALIDITY OF LICENSE PUBLIC KEY
S23
42
ACTIVATION PUBLIC KEY
SEND EXPIRATION DATE AND ACTIVATION PUBLIC KEY TO ROUTE SERVER
S24
44
SERVER EXPIRATION DATE
RECEIVE AUTHENTICATION SERVER CERTIFICATE DATA
S25
45
AUTHENTICATION SERVER CERTIFICATE DATA

FIG.6

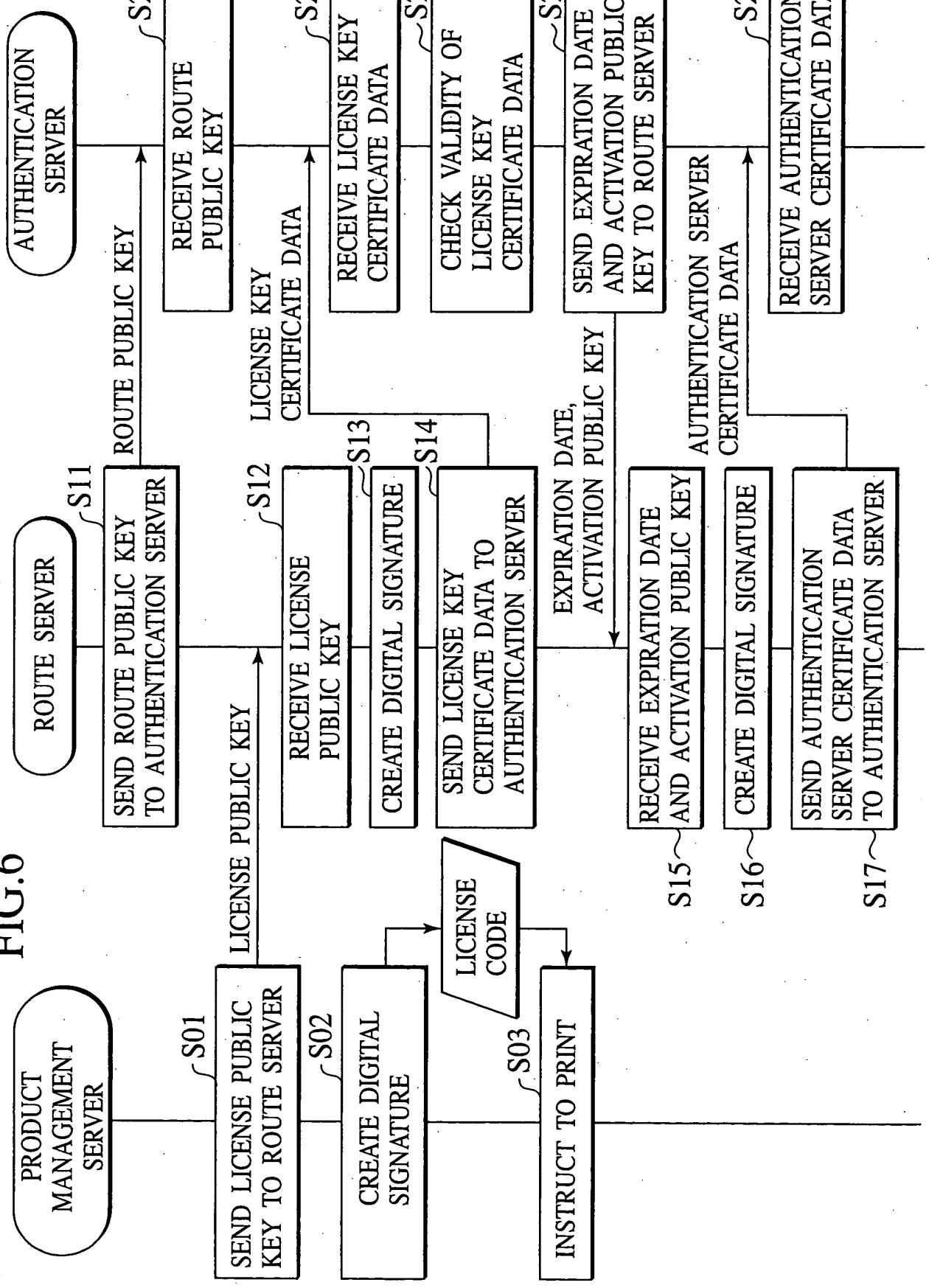

PRODUCT MANAGEMENT SERVER
S01
SEND LICENSE PUBLIC KEY TO ROUTE SERVER
LICENSE PUBLIC KEY
S02
CREATE DIGITAL SIGNATURE
LICENSE CODE
S03
INSTRUCT TO PRINT
ROUTE SERVER
S11
SEND ROUTE PUBLIC KEY TO AUTHENTICATION SERVER
ROUTE PUBLIC KEY
S12
RECEIVE LICENSE PUBLIC KEY
S13
CREATE DIGITAL SIGNATURE
S14
SEND LICENSE KEY CERTIFICATE DATA TO AUTHENTICATION SERVER
EXPIRATION DATE, ACTIVATION PUBLIC KEY
S15
RECEIVE EXPIRATION DATE AND ACTIVATION PUBLIC KEY
AUTHENTICATION SERVER CERTIFICATE DATA
S16
CREATE DIGITAL SIGNATURE
S17
SEND AUTHENTICATION SERVER CERTIFICATE DATA TO AUTHENTICATION SERVER
AUTHENTICATION SERVER
S21
RECEIVE ROUTE PUBLIC KEY
LICENSE KEY CERTIFICATE DATA
S22
RECEIVE LICENSE KEY CERTIFICATE DATA
S23
CHECK VALIDITY OF LICENSE KEY CERTIFICATE DATA
S24
SEND EXPIRATION DATE AND ACTIVATION PUBLIC KEY TO ROUTE SERVER
S25
RECEIVE AUTHENTICATION SERVER CERTIFICATE DATA

FIG.7

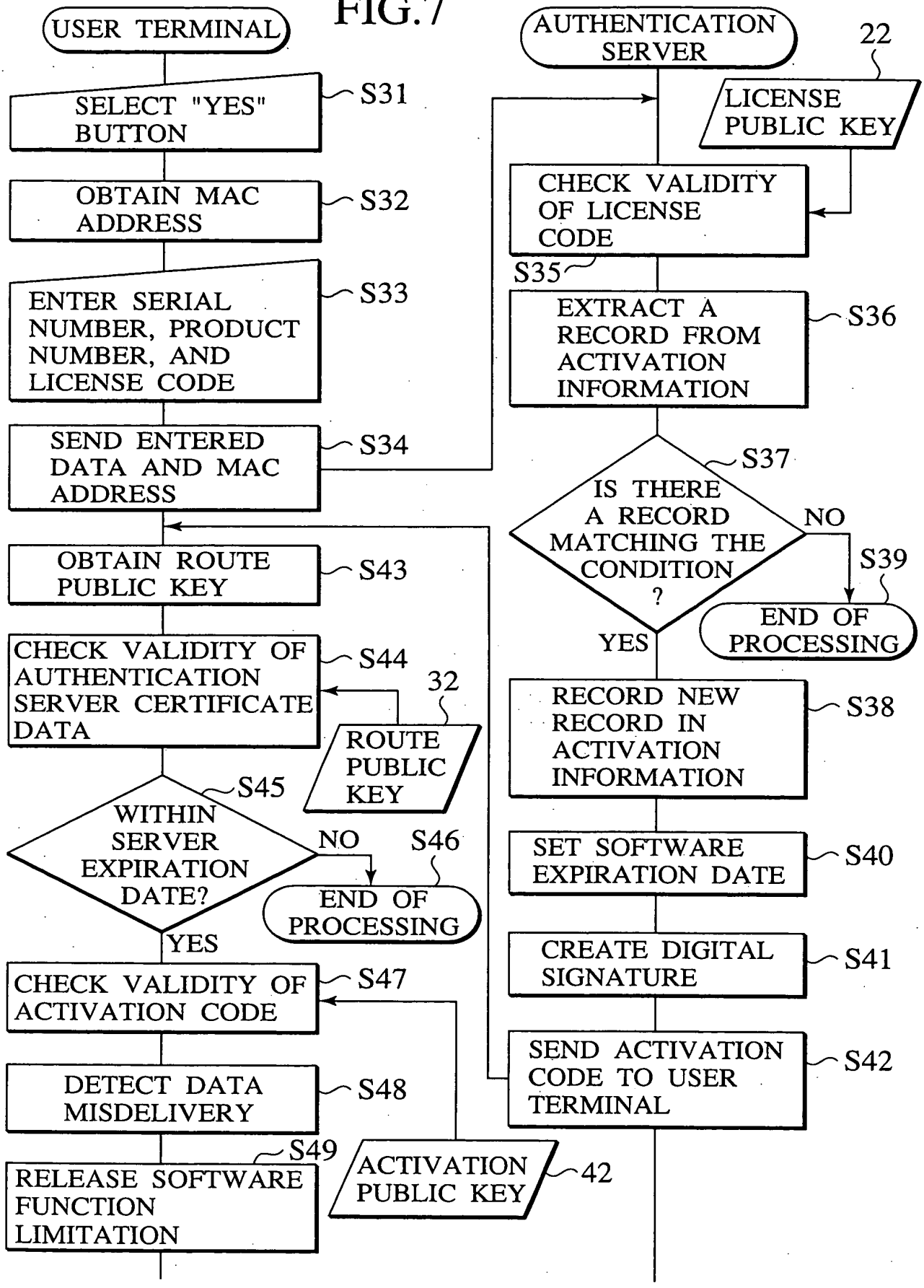

USER TERMINAL
SELECT "YES" BUTTON
S31
OBTAIN MAC ADDRESS
S32
ENTER SERIAL NUMBER, PRODUCT NUMBER, AND LICENSE CODE
S33
SEND ENTERED DATA AND MAC ADDRESS
S34
OBTAIN ROUTE PUBLIC KEY
S43
CHECK VALIDITY OF AUTHENTICATION SERVER CERTIFICATE DATA
S44
32
ROUTE PUBLIC KEY
WITHIN SERVER EXPIRATION DATE?
S45
NO
S46
END OF PROCESSING
YES
CHECK VALIDITY OF ACTIVATION CODE
S47
DETECT DATA MISDELIVERY
S48
RELEASE SOFTWARE FUNCTION LIMITATION
S49
ACTIVATION PUBLIC KEY
42
AUTHENTICATION SERVER
22
LICENSE PUBLIC KEY
CHECK VALIDITY OF LICENSE CODE
S35
EXTRACT A RECORD FROM ACTIVATION INFORMATION
S36
IS THERE A RECORD MATCHING THE CONDITION ?
S37
NO
S39
END OF PROCESSING
YES
RECORD NEW RECORD IN ACTIVATION INFORMATION
S38
SET SOFTWARE EXPIRATION DATE
S40
CREATE DIGITAL SIGNATURE
S41
SEND ACTIVATION CODE TO USER TERMINAL
S42

FIG.8A

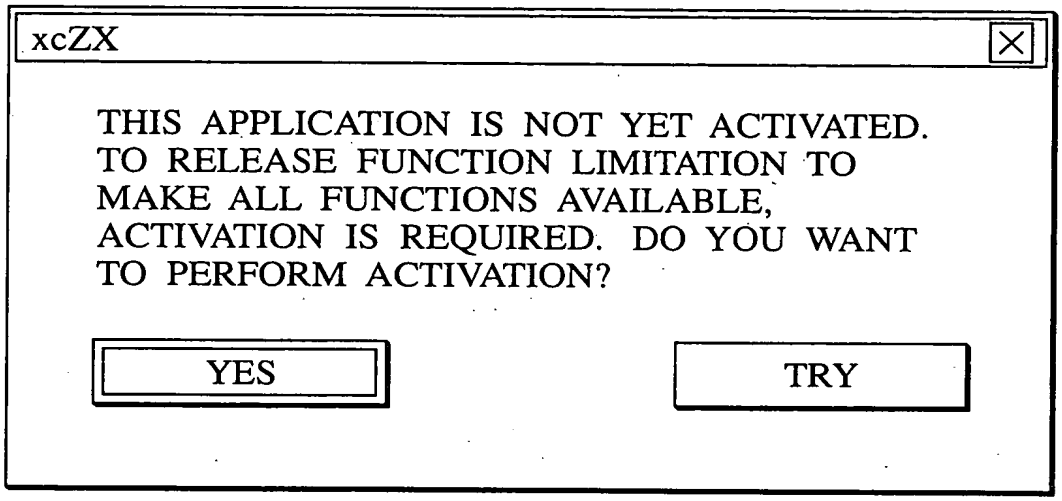

xcZX
THIS APPLICATION IS NOT YET ACTIVATED. TO RELEASE FUNCTION LIMITATION TO MAKE ALL FUNCTIONS AVAILABLE, ACTIVATION IS REQUIRED. DO YOU WANT TO PERFORM ACTIVATION?
YES
TRY

FIG.8B

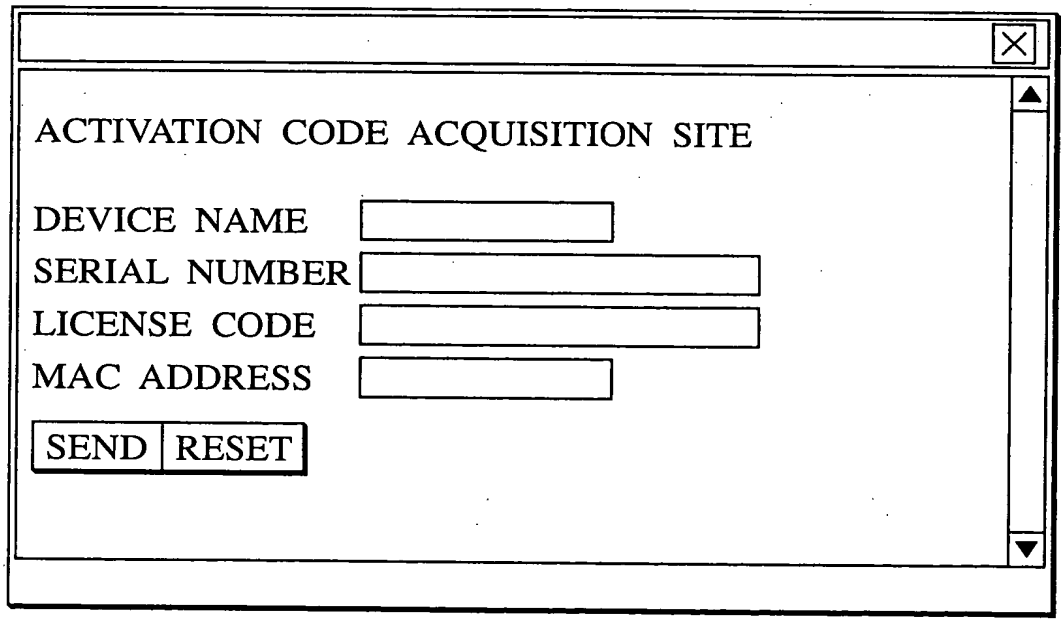
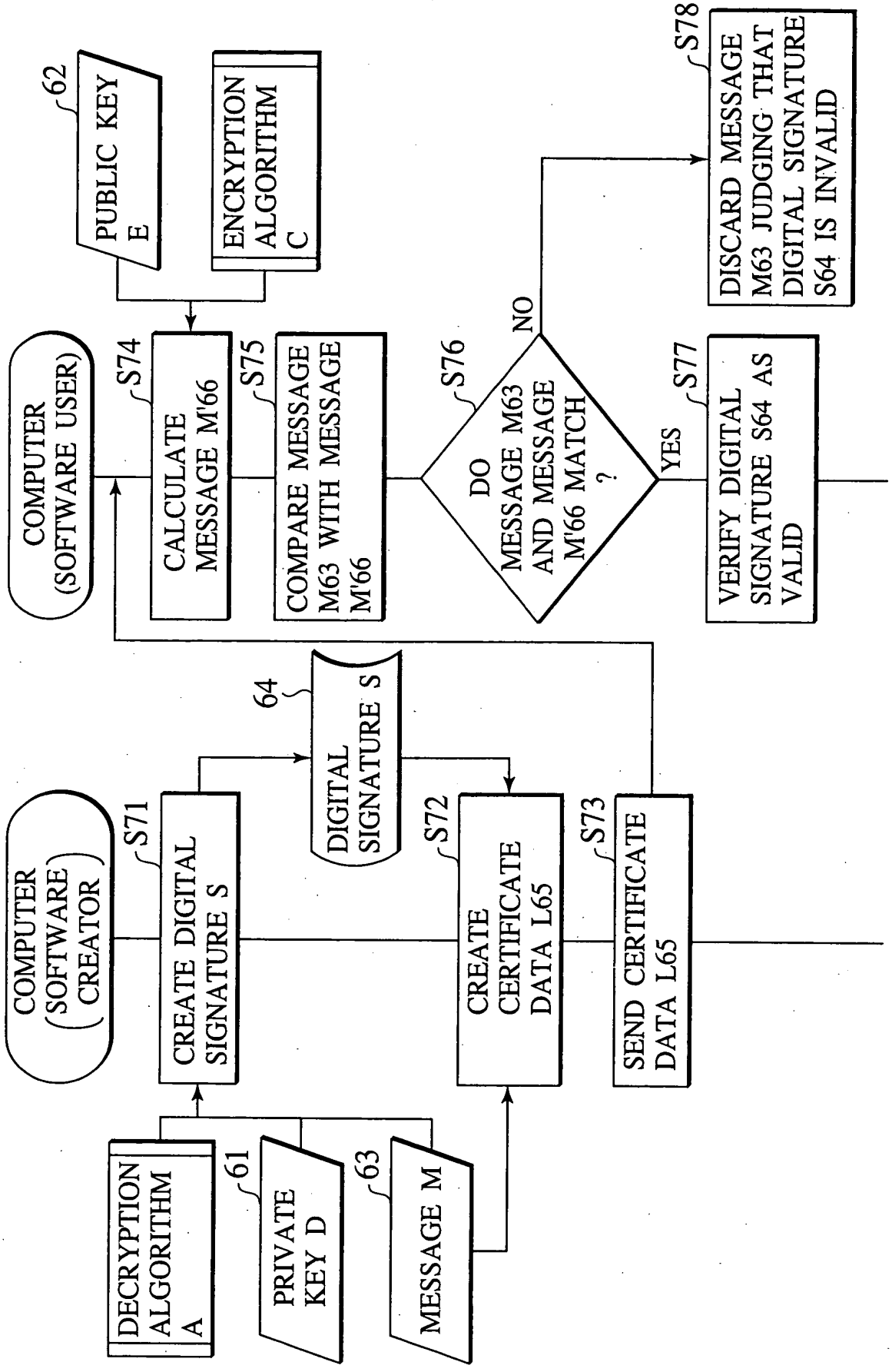

ACTIVATION CODE ACQUISITION SITE
DEVICE NAME
SERIAL NUMBER
LICENSE CODE
MAC ADDRESS
SEND
RESET

FIG.9


COMPUTER (SOFTWARE CREATOR)
S71
CREATE DIGITAL SIGNATURE S
S72
CREATE CERTIFICATE DATA L65
S73
SEND CERTIFICATE DATA L65
DECRYPTION ALGORITHM A
61
PRIVATE KEY D
63
MESSAGE M
64
DIGITAL SIGNATURE S
COMPUTER (SOFTWARE USER)
S74
CALCULATE MESSAGE M'66
S75
COMPARE MESSAGE M63 WITH MESSAGE M'66
S76
DO MESSAGE M63 AND MESSAGE M'66 MATCH ?
NO
YES
S77
VERIFY DIGITAL SIGNATURE S64 AS VALID
S78
DISCARD MESSAGE M63 JUDGING THAT DIGITAL SIGNATURE S64 IS INVALID
62
PUBLIC KEY E
ENCRYPTION ALGORITHM C